Whole-mount in situ hybridization on lamprey embryos.

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Public Summary:
Here we describe a method for staining lamprey embryos with reagents that recognize specific messenger RNAs, a technique called in situ hybridization.

Scientific Abstract:
Lampreys are one of the most basal animals in which many of the true vertebrate characteristics (e.g., neural crest, placodes, segmented brain, skull, paired sensory organs, pharyngeal skeleton) are present. Studying the molecular and developmental mechanisms responsible for the formation of these structures in lamprey and higher vertebrates can provide insight into how these vertebrate characteristics evolved. The relative ease of obtaining mature adults and embryos makes this animal an ideal model for investigations into early vertebrate evolution. In addition, studies of features that are unique to lampreys can provide insights into mechanisms of parallel evolution. This protocol describes an optimized procedure for RNA in situ hybridization in lamprey embryos.